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07-566977

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US005681941A

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**United States Patent** [19]

Cook et al.

[11] Patent Number: **5,681,941**[45] Date of Patent: **Oct. 28, 1997**[54] **SUBSTITUTED PURINES AND OLIGONUCLEOTIDE CROSS-LINKING**[75] Inventors: **Phillip Dan Cook; Muthiah Manoharan**, both of Carlsbad; **Kanda S. Ramasamy**, Laguna Hills, all of Calif.[73] Assignee: **ISIS Pharmaceuticals, Inc.**, Carlsbad, Calif.[21] Appl. No.: **189,792**[22] Filed: **Feb. 1, 1994****Related U.S. Application Data**

[63] Continuation-in-part of Ser. No. 463,358, Jan. 11, 1990, abandoned, and Ser. No. 566,977, Aug. 13, 1990, abandoned.

[51] Int. Cl.<sup>6</sup> ..... **C07H 21/00; C07H 19/16**[52] U.S. Cl. .... **536/23.1; 536/22.1; 536/25.3; 536/25.34; 536/26.26; 536/26.7; 544/264**[58] Field of Search ..... **536/22.1, 23.1, 536/25.3, 25.34, 26.7, 26.26; 544/264**[56] **References Cited****U.S. PATENT DOCUMENTS**

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